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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
187718US-475387-245

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on _____

Signature _____

Typed or printed name _____

Application Number	Filed
09/709,162	11/10/2000

First Named Inventor: Guillermo J. Tearney

Art Unit	Examiner
3737	James M. Kish

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☑ attorney or agent of record. Registration number 40,479.
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

Signature

Gary Abelev
Typed or printed name

212-415-9371
Telephone number

May 6, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Guillermo J. Tearney et al.
Serial No.	:	09/709,162
Filed	:	November 10, 2000
For	:	SPECTRALLY ENCODED MINIATURE ENDOSCOPIC IMAGING PROBE
Examiner	:	James M. Kish
Group Art Unit	:	3737
Confirmation No.	:	3219

Commissioner for Patents - Mail Stop AF
P.O. Box 1450
Alexandria, Virginia 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW AND ARGUMENTS

Sir:

As set forth in the New Pre-Appeal Brief Conference Pilot Program guidelines dated July 12, 2005, this Pre-Appeal Brief Request for Review sets forth a succinct, concise and focused set of arguments for which the review is being requested. This paper is being filed contemporaneously with a Notice of Appeal and the request form PTO/SB/33. This paper is filed in response to Final Office Action dated January 6, 2011 ("Final Office Action") and Advisory Action of April 26, 2011.

CLAIM STATUS

Claims 68, 70-72, 74, 76-82, 84-94, 96-102, 104-148, 150, 151, 153, 154, 156, 157 and 159-162 as presented in the Amendment and Response to Final Office Action filed April 28, 2010 are currently under consideration in the present application. Claims 142-146 are allowed.

ARGUMENTS

I. REJECTIONS UNDER 35 U.S.C. §§ 102(b) AND 103(a) SHOULD BE WITHDRAWN

Claim 68-75, 81, 82, 84-87, 89-95, 101, 102, 104-107, 109-116, 118-128, 130, 137-140, 147-157, 161 and 162 stand finally rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,318,024 issued to Kittrell et al. (the "Kittrell Patent"). Claims 88, 108, 117, 129, 131-136, 141 and 158-160 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No. 3,941,121 issued to Olinger et al. (the "Olinger Patent"). Claims 76-78 and 96-98 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of International Publication No. WO 99/44089 by Webb et al. (the "Webb Publication"). Claims 79, 80, 99 and 100 stand finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No. 5,275,594 issued to Baker et al. (the "Baker Patent"). Applicants respectfully assert that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, fails to teach, suggest or disclose the subject matter recited in amended independent claims 68, 89, 113, 125 and 131 (which include the subject matter of now-cancelled claims 69, 73 and 75), and the claims which depend therefrom, for at least the following reasons.

The Kittrell Patent describes a laser endoscope for generating a spectrally resolved spatial image of tissue. Fiber optics positioned within an optically shielded endoscope are used to deliver laser radiation to tissue to be imaged. Radiation returning through the fiber optics from the tissue is spectrally resolved and used to generate an image of tissue that can assist in diagnosis and treatment. (See Kittrell Patent, Abstract).

A generalized spectral system is shown in Figs. 21 and 22 of the Kittrell Patent. As illustrated in Fig. 21, an excitation light 95 is sent from a laser or conventional light source into a selected optical fiber 20. This light passes through a beam splitter 52 or a mirror with a hole 50 (as shown in Fig. 22), and focused onto the input end 40 by a lens 41. The light exits the distal end of the optical fiber 20, passes through the optical shield 12, and impinges on the tissue 34 (of Fig. 4). The fluorescence and scattered light is returned via the same or a different optical fiber 20 to the proximal end 40 of the optical fiber 20. This return light 54 is separated by the beam splitter 52 or by the mirror 50 with hole 51 (see Fig. 22), and enters a spectrum analyzer 60. A diffraction grating 68 of the spectral detector 65 can disperse the return light from a target. The dispersed light is projected onto a multichannel detector 70 which has many detectors. (See id., col. 19, lns. 20-47). Fig. 13B of the Kittrell Patent illustrates the use of a prism, but without any lens.

The Olinger Patent relates to a needle endoscope includes a hollow needle of about 18-gauge, a lens system within the needle, an image transmitting bundle of flexible fiber-optic rods within the needle, a plurality of illumination transmitting fiber-optic rods within the needle, an operative channel within the needle, and apparatus to shift the image transmitting bundle with respect to the lens system and needle to provide focus adjustment for focusing the endoscope on objects at various distances from the end of the needle. (See Olinger Patent, Abstract). The Webb Publication relates to a scanning confocal microscopy system, especially useful for endoscopy with a flexible probe which is connected to the end of an optical fiber (9). The probe has a grating (12) and a lens (14) which delivers a beam of multi-spectral light having spectral components which extend in one dimension across a region of an object and which is moved to scan in another dimension. The reflected confocal spectrum is measured to provide an image of the region. (See Webb Publication, Abstract).

The Baker Patent relates to angioplasty system and method for identification and laser ablation of atherosclerotic plaque at a target site in a blood vessel. Such system and method employ fluorescence analysis for identification of noncalcified plaque and calcium photoemission analysis for identification of calcified plaque. Calcified plaque is identified by time domain analysis of calcium photoemission. A high energy pulsed ultraviolet laser can be used for stimulation of fluorescence and for stimulation of calcium photoemission. The system is capable of distinguishing between calcium photoemission and a defective condition of optical fibers that are used to deliver laser energy to the target site. In an another embodiment of the angioplasty system, calcium photoemission is identified during a nonablative initial portion of the laser ablation pulse. When calcium photoemission is not identified, the laser ablation pulse is terminated during the initial nonablative portion thereof. (See Baker Patent, Abstract).

Independent claim 68 relates to an apparatus for obtaining information associated with an anatomical structure which comprises, *inter alia*:

> **an image-forming lens arrangement which is configured to provide there through electro-magnetic radiation, wherein the electro-magnetic radiation is provided by at least one of a broadband source or a wavelength tuned source;**
>
> **an optical waveguide configured to transmit and receive the information from the structure on a macroscopic scale;**
>
> **at least one further arrangement which is structured to obtain the information based on a radiation obtained from the structure, wherein the information is at least one of a two-dimensional image or a three dimensional image**; and
>
> **a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation** and **forward a dispersed radiation thereof to at least one section of the structure regarding which the information is being obtained**

on a macroscopic scale, wherein **the image-forming lens arrangement forms an image of the anatomical structure.**

Independent claims 89, 113, 125 and 131 which relate to various apparati for obtaining information associated with an anatomical structure which also comprise certain recitations together with, *inter alia*, **an image-forming lens arrangement that forms an image of the anatomical structure**

Thus, each of independent claims 68, 89, 113, 125 and 131 recites (i) an "image-forming lens arrangement" and a "dispersive arrangement", (ii) that the radiation is forwarded to at least one portion of a "structure regarding which the information is being obtained", and (iii) that the image-forming lens arrangement forms an image of the anatomical structure. In addition, each of independent claims 68, 89, 113, 125 and 131 recites (i) that the electro-magnetic radiation(s) is/are provided by a broadband source and/or a wavelength tuned source, (ii) an optical waveguide configured to transmit and receive the information from the structure on a macroscopic scale, and (iii) at least one further arrangement which is structured to obtain the information based on a radiation obtained from the structure, where the information is a two-dimensional image and/or a three dimensional image.

First, as previously stated in Applicants' prior response, it is respectfully asserted that the Kittrell Patent fails to teach, suggest or disclose that **an image-forming lens arrangement which forms an image of the anatomical structure**, as recited in amended independent claims 68, 89, 113, 125 and 131. In the Final Office Action, the Examiner again pointed to lenses 40 and 41 as being equivalent to the lens arrangement recited in each of amended independent claims 68, 89, 113, 125 and 131. (See latest Final Office Action, p 5). However, the portion of the Kittrell Patent that is pointed to by the Examiner as being the lens arrangement that form an image cannot actually form an image at all. For example, the glass 12 may receive radiation, and may curved, but cannot at all form an image of any anatomical structure. Indeed, as shown in Figs. 21 and 22 of the Kittrell Patent, the lens 41 forwards the radiation to a spectral analyzer 60. Thus, it appears that the Examiner equates this spectral analyzer 60 with the dispersive arrangement, as recited in amended independent claims 68, 89, 113, 125 and 131. Even if the lens 41 of the Kittrell Patent can be equated to the recited lens arrangement of amended independent claims 68, 89, 113, 125 and 131, such lens 41 only forms an image of the fibers, and certainly not of the anatomical structure. Clearly, no image at all (any of spectral, tomographic, etc.) ***of the anatomical structure*** is formed by the lens 41 of the Kittrell Patent. In addition, the shield 12 of the Kittrell Patent does not form an image of anything, much less the anatomical structure.

In the Advisory Action, the Examiner alleges that it is "inherent that an image forming lens arrangement would form an image. Furthermore, based on the preamble, it would be inherently an image of the structure for which the information is being obtained." (Advisory Action, p. 2, lns. 4-5). Applicants respectfully disagree.

As previously stated, the image can be formed on the lens arrangement using an equation known to those having ordinary skill in the art, e.g., $1/f = 1/o + 1/I$, where f is a focal length, o is an object distance to the lens, and I is an distance from the lens to the location, where the image is formed. This is the equation that would form an image of the structure on and by the lens arrangement. However, none of the lenses described or shown in the Kittrell Patent are in a configuration which would allow any images to be formed thereon or thereby. For example, the Examiner previously alleged that the Kittrell Patent's shield and prism of Fig. 13D can be the combination as recited in independent claims. However, this combination does not allow the shield 12 to satisfy the above equation which is known to be image formation. In contrast, the image forming arrangement (which includes an objective 32, with or without a polarizer 42) provided in conjunction with, e.g., a holographic grating 34 describe at para. [0033]-[0035] of U.S. Publication No. 2008/0013960 of a continuation application of the present application (which includes identical disclosure), certainly provides the image thereby, and does satisfy the image forming equation (known

to those having ordinary skill in the art). Thus, the Examiner's further contention in the Advisory Action that the image formed by the image-forming lens arrangement is not described in the present application as indicated herein is *inaccurate*, especially in view of the explicit description indicated above contained in the specification of the present application.

Second, in the latest Final Office Action, the Examiner pointed to Fig. 23 of the Kittrell Patent, and contended that the lens 40 provided in such figure being such recited lens arrangement. (See Final Office Action, p. 2, second full para.). However, the lens 40 only receives light from a source and the fiber, but does not form any image (any of spectral, tomographic, etc.) thereon. In Fig. 23 of the Kittrell Patent, it is clear that the lens 40 transmits the radiation to the fiber, but that such lens 40 does not form any image. Thus, it is respectfully asserted that the Kittrell Patent lacks **the image-forming lens arrangement which forms an image of the anatomical structure**, as recited in independent claims 68, 89, 113, 125 and 131 of the present application.

Third, as previously stated, while the lens 41 of the Kittrell Patent may be image-forming, the radiation being forwarded to the spectral analyzer 60 is in no way **then forwarded to at least one section of any structure, much less regarding which the information is being obtained**. In summary, the configuration of *the image-forming lens providing the radiation to the dispersive arrangement which then forwards the dispersed radiation to the structure*, as recited in amended independent claims 68, 89, 113, 125 and 131, is in no way described or shown in the Kittrell Patent, much less in Figs. 21 and 22 thereof.

Fourth, Figs. 13A-13F of the Kittrell Patent show that the transparent shield/enclosure 12 appears to have an equal distance between the inner surface and the outer surface along the section thereof through which the radiation is exhibited. Thus, no image can be formed thereby. In addition, the lens 41 of the Kittrell Patent which forwards the radiation from a laser to the fibers 20 also do not provide or form any images, and thus cannot be equated to the "**image-forming lens arrangement" that forms an image of the anatomical structure**, as recited in independent claims 68, 89, 113, 125 and 131.

Fifth, during the interview the Examiner suggested adding the additional recitations of previously-pending dependent claims, as follows:

- that the electro-magnetic radiation(s) is/are provided by a broadband source and/or a wavelength tuned source (as previously recited in now cancelled claim 69),
- an optical waveguide configured to transmit and receive the information from the structure on a macroscopic scale (as previously recited in now cancelled claim 73), and
- at least one further arrangement which is structured to obtain the information based on a radiation obtained from the structure, wherein the information is at least one of a two-dimensional image or a three dimensional image (as previously recited in now-cancelled claim 73).

In the Interview Summary dated February 22, 2011, the Examiner admitted that when such amendments and arguments are received, new search and consideration will be made. In the Advisory Action, the Examiner appears to reverse his position, and contends that the only agreement was made was that these amendments "would be a good direction to go with ... so as to what the system is." (See Advisory Action, p. 2, lns. 17-20). Such position contradicts the statement made regarding the discussion held during the interview (as evidenced in the Interview Summary prepared by the Examiner). Indeed, the Examiner did not perform a new search (as indicated during the Interview). In addition, the Examiner failed to consider the recitation of an optical waveguide configured to transmit and receive the information from the structure ***on a macroscopic scale***, as recited in these independent claims. Indeed, such subject matter is not described in the Kittrell Patent. Further, Applicants respectfully assert that the combination all of the additional recitations with the other recitations in the claims render the respective independent claims novel and non-obvious.

The Olinger Patent, the Webb Publication and/or the Baker Patent do not cure such deficiencies of the Kittrell Patent, and the Examiner does not contend that they do.

Accordingly, Applicants respectfully submit that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, does not render obvious the subject matter recited in amended independent claim 68, 89, 113, 125 and 131. The claims which depend from such independent claims are also not taught, suggested or disclosed by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent for at least the same reasons.

Regarding claim 147, this claim depend from independent claims 74 and independent claim 68, and also recites that "**the optical fiber has an end portion that is provided at a position of an image plane of the at least one portion which is established by the lens.**" In the Advisory Action, the Examiner contends that such subject matter is disclosed in the Kittrell Patent with a shield acting as a lens, and that the shield is in a position of the image plane of the portion. (See Advisory Action, p. 2, last three lines).

However, it is again respectfully asserted that the Kittrell Patent nowhere discloses that the optical fiber has **an end portion that is provided at a position of an image plane of at least one portion** of the anatomical structure which is established by the lens. Indeed, the shield of the Kittrell Patent is ***clearly not and cannot be*** any optical fiber that has an end portion provided at a position plane of the portion(s) of the structure. Further, the shield of the Kittrell Patent its is certainly not provided on any image plane of the portion(s) of the structure. In addition, since the lens/shield of the Kittrell Patent does not form an image as discussed herein above, the end portion of Kittrell Patent's fiber is not provided at any position of the image plane of the portion(s).

Accordingly, Applicants respectfully request the Examiner to confirm that the subject matter of claim 147 is not taught, suggested or disclosed by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent.

II. CONCLUSION

In light of the foregoing, Applicants respectfully assert that all pending claims 68, 70-72, 74, 76-82, 84-94, 96-102, 104-148, 150, 151, 153, 154, 156, 157 and 159-162 are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited. The Examiner and/or the panel are invited to contact the undersigned to expedite the prosecution of this application if any issues remain outstanding.

This Pre-Appeal Brief Request for Review is submitted contemporaneously with a Notice of Appeal. Accordingly, please charge Deposit Account No. 50-2054 in the amount of $270.00 (small entity) for the Notice of Appeal fee, a one-month extension of time fee under 37 C.F.R. § 1.136(a). No further fees or petitions are believed to be required. If any such petitions or fees are necessary, please consider this a request therefore and authorization to charge Deposit Account No. 50-2054.

Respectfully submitted,

Date: May 6, 2011

By: _____

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